

WHAT IS CLAIMED IS:

1. A kit comprising, in a pharmaceutically acceptable form, biologically effective amounts  
5 of at least a first targeting agent-therapeutic agent construct that comprises at least a first  
targeting agent that binds to an aminophospholipid operatively attached to at least a first  
therapeutic agent; and:

10 (a) a targeting agent-detectable agent construct that comprises a second targeting  
agent that binds to an aminophospholipid operatively attached to a detectable  
agent; or

(b) at least a second anti-cancer agent.

15 2. The kit of claim 1, wherein said targeting agent-therapeutic agent construct comprises a  
targeting agent that binds to phosphatidylethanolamine.

20 3. The kit of claim 1, wherein said targeting agent-therapeutic agent construct comprises a  
targeting agent that binds to phosphatidylserine.

25 4. The kit of claim 1, wherein said targeting agent-therapeutic agent construct comprises at  
least a first anti-aminophospholipid antibody or antigen-binding fragment thereof.

30 5. The kit of claim 4, wherein said targeting agent-therapeutic agent construct comprises at  
least a first IgG or IgM anti-aminophospholipid antibody.

6. The kit of claim 4, wherein said targeting agent-therapeutic agent construct comprises at least a first scFv, Fv, Fab', Fab or F(ab')<sub>2</sub> antigen-binding fragment of an anti-aminophospholipid antibody.

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7. The kit of claim 4, wherein said targeting agent-therapeutic agent construct comprises at least a first recombinant anti-aminophospholipid antibody, or antigen-binding fragment thereof.

10 8. The kit of claim 4, wherein said targeting agent-therapeutic agent construct comprises at least a first human, humanized or part-human chimeric anti-aminophospholipid antibody, or antigen-binding fragment thereof.

15 9. The kit of claim 4, wherein said targeting agent-therapeutic agent construct comprises at least a first monoclonal anti-aminophospholipid antibody, or antigen-binding fragment thereof.

20 10. The kit of claim 1, wherein said targeting agent-therapeutic agent construct comprises at least a first aminophospholipid binding protein or an aminophospholipid-binding fragment thereof.

25 11. The kit of claim 10, wherein said targeting agent-therapeutic agent construct comprises at least a first phosphatidylserine binding protein or a phosphatidylserine-binding fragment thereof.

30 12. The kit of claim 10, wherein said targeting agent-therapeutic agent construct comprises at least a first phosphatidylethanolamine binding protein or a phosphatidylethanolamine-binding fragment thereof.

13. The kit of claim 10, wherein said targeting agent-therapeutic agent construct comprises at least a first Annexin V or kininogen or an aminophospholipid-binding fragment thereof.

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14. The kit of claim 1, wherein said targeting agent-therapeutic agent construct comprises at least a first anticellular or cytotoxic agent.

10 15. The kit of claim 14, wherein said targeting agent-therapeutic agent construct comprises at least a first gelonin, ricin A chain or deglycosylated ricin A chain.

15 16. The kit of claim 1, wherein said targeting agent-therapeutic agent construct comprises at least a first coagulant.

20 17. The kit of claim 16, wherein said targeting agent-therapeutic agent construct comprises at least a first Tissue Factor, dimeric Tissue Factor, trimeric Tissue Factor, polymeric Tissue Factor, mutant Tissue Factor, truncated Tissue Factor or a Tissue Factor derivative.

25 18. The kit of claim 1, wherein said targeting agent-therapeutic agent construct comprises an anti-phosphatidylserine antibody, or antigen binding fragment thereof, that is directly or indirectly attached to truncated Tissue Factor.

19. The kit of claim 1, wherein said kit comprises at least a first pharmaceutically acceptable formulation suitable for intravenous administration.

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20. The kit of claim 1, wherein said kit comprises, in distinct pharmaceutical compositions, said at least a first targeting agent-therapeutic agent construct in combination with said targeting agent-detectable agent construct.

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21. The kit of claim 20, wherein said targeting agent-detectable agent construct comprises the X-ray detectable compound bismuth (III), gold (III), lanthanum (III) or lead (II).

10 22. The kit of claim 20, wherein said targeting agent-detectable agent construct comprises the detectable radioactive ion copper<sup>67</sup>, gallium<sup>67</sup>, gallium<sup>68</sup>, indium<sup>111</sup>, indium<sup>113</sup>, iodine<sup>123</sup>, iodine<sup>125</sup>, iodine<sup>131</sup>, mercury<sup>197</sup>, mercury<sup>203</sup>, rhenium<sup>186</sup>, rhenium<sup>188</sup>, rubidium<sup>97</sup>, rubidium<sup>103</sup>, technetium<sup>99m</sup> or yttrium<sup>90</sup>.

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23. The kit of claim 20, wherein said targeting agent-detectable agent construct comprises the detectable nuclear magnetic spin-resonance isotope cobalt (II), copper (II), chromium (III), dysprosium (III), erbium (III), gadolinium (III), holmium (III), iron (II), iron (III), manganese (II), neodymium (III), nickel (II), samarium (III), terbium (III), vanadium (II) or ytterbium (III).

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24. The kit of claim 1, wherein said kit comprises said at least a first targeting agent-therapeutic agent construct in combination with said at least a second anti-cancer agent.

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25. The kit of claim 24, wherein said at least a first targeting agent-therapeutic agent construct and said at least a second anti-cancer agent are comprised within a single pharmaceutical composition.

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26. The kit of claim 24, wherein said at least a first targeting agent-therapeutic agent construct and said at least a second anti-cancer agent are comprised within distinct pharmaceutical compositions.

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27. The kit of claim 24, wherein said at least a second anti-cancer agent is a chemotherapeutic agent, radiotherapeutic agent, anti-angiogenic agent or apoptosis-inducing agent.

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28. The kit of claim 24, wherein said at least a second anti-cancer agent is an antibody-therapeutic agent construct comprising a second targeting antibody, or antigen-binding fragment thereof, that binds to a surface-expressed, surface-accessible or surface-localized component of a tumor cell, tumor stroma or tumor vasculature; wherein said targeting antibody or fragment thereof is operatively linked to a therapeutic agent.

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29. The kit of claim 28, wherein said second targeting antibody, or antigen-binding fragment thereof, binds to a surface-expressed, surface-accessible, surface-localized, cytokine-inducible or coagulant-inducible component of intratumoral blood vessels of a vascularized tumor.

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30. The kit of claim 29, wherein said second targeting antibody, or antigen-binding fragment thereof, binds to a component of intratumoral vasculature selected from the group consisting of an aminophospholipid, endoglin, a TGF $\beta$  receptor, E-selectin, P-selectin, VCAM-1, ICAM-1, PSMA, a VEGF/VPF receptor, an FGF receptor, a TIE,  $\alpha_v\beta_3$  integrin, pleiotropin, endosialin, an MHC Class II protein, VEGF/VPF, FGF, TGF $\beta$ , a ligand that binds to a TIE, a tumor-associated fibronectin isoform, scatter factor/hepatocyte growth factor (HGF), platelet factor 4 (PF4), PDGF and TIMP.

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31. The kit of claim 28, wherein said second targeting antibody, or antigen-binding fragment thereof, is operatively linked to gelonin, deglycosylated ricin A chain, Tissue Factor, truncated Tissue Factor or to an antibody, or antigen-binding fragment thereof, that binds to Tissue Factor or truncated Tissue Factor.

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32. The kit of claim 1, wherein said kit comprises biologically effective amounts of:

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- (a) at least a first targeting agent-therapeutic agent construct that comprises at least a first targeting agent that binds to an aminophospholipid operatively attached to at least a first therapeutic agent;
  - (b) a targeting agent-detectable agent construct that comprises a second targeting agent that binds to an aminophospholipid operatively attached to a detectable agent; and
  - (c) at least a second anti-cancer agent.
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20 33. An imaging and treatment kit, comprising:

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- (a) a first pharmaceutical composition comprising a diagnostically effective amount of a targeting agent-detectable agent construct that comprises a detectable agent operatively attached to a first targeting agent that binds to an aminophospholipid; and
  - (b) a second pharmaceutical composition comprising a therapeutically effective amount of a targeting agent-therapeutic agent construct that comprises a therapeutic agent operatively attached to a second targeting agent that binds to an aminophospholipid.
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34. The kit of claim 33, wherein said first or second targeting agents are anti-aminophospholipid antibodies or antigen-binding fragments thereof.

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35. The kit of claim 33, wherein said first and second targeting agents are anti-aminophospholipid antibodies, or fragments thereof, obtained from the same antibody preparation or antibody-producing hybridoma.

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36. The kit of claim 33, wherein said targeting agent-therapeutic agent construct is an anti-phosphatidylserine antibody, or antigen binding fragment thereof, that is directly or indirectly attached to truncated Tissue Factor.

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37. The kit of claim 33, further comprising a therapeutically effective amount of at least a second anti-cancer agent.

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38. A therapeutic kit comprising, in at least a first suitable container, a pharmaceutically effective amount of a first anti-cancer agent comprising at least a first targeting agent that binds to an aminophospholipid operatively attached to at least a first therapeutic agent; and a biologically effective amount of at least a second anti-cancer agent.

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39. The kit of claim 38, wherein said first anti-cancer agent comprises an anti-phosphatidylserine antibody, or antigen binding fragment thereof, operatively attached to truncated Tissue Factor.

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40. The kit of claim 38, wherein said at least a second anti-cancer agent is an anti-angiogenic agent, an apoptosis-inducing agent or a vascular targeting agent.

5 41. The kit of claim 38, wherein said kit further comprises a diagnostically effective amount of a targeting agent-detectable agent construct that comprises a detectable agent operatively attached to a second targeting agent that binds to an aminophospholipid.

10 42. A medicinal cocktail, comprising a combined effective amount of a first anti-cancer agent and at least a second anti-cancer agent comprising a targeting agent that binds to an aminophospholipid operatively attached to one or more therapeutic agents.

15 43. In combination, biologically effective amounts of:

20 (a) at least a first targeting agent-therapeutic agent construct that comprises at least a first targeting agent that binds to an aminophospholipid operatively attached to at least a first therapeutic agent;

(b) a targeting agent-detectable agent construct that comprises a second targeting agent that binds to an aminophospholipid operatively attached to a detectable agent; and

25 (c) at least a second anti-cancer agent.

add  
a8

add  
c1

add  
B2

add  
D4